

REMARKS

Applicants request favorable reconsideration and withdrawal of the rejections set forth in the above-identified Office Action in view of the foregoing amendments and the following remarks.

Claims 1, 3 and 4 remain pending, with claim 1 being the only independent claim. Claim 1 has been amended. Claims 2, 5, and 6 have been cancelled without prejudice or disclaimer of subject matter.

Support for the amendments to claim 1 can be found throughout the originally-filed disclosure. As specific examples, a description of the amended features related to hydrophilic segments that are carboxylic acid segments obtained by conducting hydrolysis after polymerization of ethyl 4-(2-vinyloxyethoxy) benzoate or 2-(ethoxycarbonyl) ethyl vinyl ether can be found at page 9, line 11 through page 11, line 1; page 26, lines 12-23; and page 28, line 25 through page 29, line 18, of the specification. As further examples, a description the definition of the upper limit of infrared absorption intensity can be found at page 29, lines 9-13 of the specification, and a description of the amount of alkali relative to the defined infrared absorption intensity can be found at page 14, lines 14-24. Accordingly, Applicants submit that the amendments do not include new matter.

Section 112 Rejection

Claims 1-6 are rejected in the Office Action under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Specifically, the Office Action finds that the previous recitation with respect to the alkali content of the claimed ink is not described in the originally-filed disclosure, that is, this recitation constitutes “new matter.”

Applicants respectfully traverse the Section 101 rejection. Nevertheless, in order to expedite prosecution, independent claim 1 has been amended to recite the alkali content in a different manner. As such, Applicants submit that the Section 112 rejection has been obviated.

Applicants further note that support for the new claim language with respect to alkali content can be found in the originally-filed disclosure, as described above. Moreover, Applicants submit that the new claim language in reciting the alkali content by infrared absorption intensity in relation to a defined standard infrared absorption intensity (i.e., when an upper limit of an infrared absorption intensity ascribed to ionic groups to be formed upon addition of the alkali to the block copolymer is supposed to be 100% in terms of a relative infrared absorption intensity determined using as a standard an infrared absorption intensity ascribed to ether groups at 1,119 cm^{-1}) would be clearly understood by one of ordinary skill in the art.

Section 103 Rejections

Amended independent claim 1 recites a water-based ink for inkjet printers that comprises, inter alia, a block copolymer with hydrophilic segments. Amended independent claim 1 further recites that the hydrophilic segments are carboxylic acid segments obtained by conducting hydrolysis after polymerization of ethyl 4-(2-vinyloxyethoxy) benzoate or 2-(ethoxycarbonyl) ethyl vinyl ether.

Applicants submit that the references cited in the Office Action fail to disclose or suggest an ink that includes such hydrophilic segments in combination with the other claimed features, as will be described below.

Rejection in view of Watanabe

Claims 1-6 are rejected in the Office Action under 35 U.S.C. § 103(a) as being unpatentable over Watanabe (U.S. Patent Application Pub. No. 2004/0239738)

Applicants respectfully submit, however, that Watanabe fails to disclose or suggest an ink that contains a block copolymer with hydrophilic segments obtained from ethyl 4-(2-vinyloxyethoxy) benzoate or 2-(ethoxycarbonyl) ethyl vinyl ether, as recited in amended independent claim 1.

In formulating the rejection, the Office Action cites paragraph [0070] of Watanabe as disclosing a “vinyl ether monomer,” and paragraph [0060] as disclosing “all vinyl polymers.”

Applicants submit, however, that these references in Watanabe fail to anticipate, or even suggest, a block copolymer with hydrophilic segments obtained from the specifically claimed ethyl 4-(2-vinyloxyethoxy) benzoate or 2-(ethoxycarbonyl) ethyl vinyl ether monomers recited in amended independent claim 1. Paragraph [0070] of the reference actually discloses only one vinyl ether monomer, namely 1,3-dioxolan-2-on-4-ylmethyl vinyl ether, which is clearly different than those recited in amended independent claim 1. Moreover, Applicants traverse the findings of the Office Action to the extent that paragraph [0060] of the reference could be taken to be suggestive of every possible “vinyl polymer.” Such a genus would include a countless (perhaps even infinite) number of polymers, and thereby fail to constitute an anticipatory or suggestive disclosure of the specifically claimed block copolymer. See MPEP §§ 2131.02 and 2144.08.

Applicants further submit that when read in context, Watanabe actually leads away from any suggestion of the obtaining hydrophilic segments for a block copolymer from the specific vinyl ether monomers recited in amended independent claim 1. Paragraphs [0061] and [0067]

through [0070] of the reference disclose that the resins made from monomers, such as the disclosed 1,3-dioxolan-2-on-4-ylmethyl vinyl ether, are selected for their crosslinking properties so that capsules can be formed on surfaces of pigment particles in the disclosed ink compositions. In stark contrast, the block copolymer with the hydrophilic segments obtained as recited in amended independent claim 1 of the present application may be adsorbed on the surfaces of colorant particles so that the colorant particles can remain in a stable micellar state. Therefore, the polymers obtained from the monomer obtained in Watanabe, such as 1,3-dioxolan-2-on-4-ylmethyl vinyl ether, are completely different in use, properties, and technology than the block copolymer of the claimed invention, which is employed as a dispersant in the claimed water-based ink.

Moreover, the Office Action in formulating the rejection with Watanabe, also refers to the “well-known properties of the vinyl ether monomers of the reference” (p. 6). As is evident from the disclosure of Watanabe discussed above, the most important property of the particular vinyl ether monomer disclosed in the reference is cross-linking upon polymerization, so that it can form capsules on the surfaces of the pigment particles. Such properties are not present with the use of the specific vinyl ether monomers/polymers of the present invention, which instead are adsorbed on the surfaces of colorant particles so that the colorant particles can remain in a stable miscellar state. This fundamental difference evidences that the claimed invention would not have been obvious to one of ordinary skill in the art in view of Watanabe.

Nor do Applicants understand any of the other passages of Watanabe cited in the Office Action, or any other passage in the reference, in general, to be suggestive of the specifically

claimed hydrophilic segments obtained from ethyl 4-(2-vinyloxyethoxy) benzoate or 2-(ethoxycarbonyl) ethyl vinyl ether.

Accordingly, for at least the foregoing reasons, Applicants submit that Watanabe fails to disclose or suggest the invention recited in amended independent claim 1.

Rejection in view of Sato et al. and Watanabe

Claims 1-6 are rejected in the Office Action under 35 U.S.C. § 103(a) as being unpatentable over Sato et al. (U.S. Patent Application Pub. No. 2003/0027894) in view of Watanabe.

Applicants submit, however, that Sato et al. fails to disclose or suggest an ink that contains the hydrophilic segments that are obtained from ethyl 4-(2-vinyloxyethoxy) benzoate or 2-(ethoxycarbonyl) ethyl vinyl ether, as recited in amended independent claim 1.

In Applicants' view, Sato et al. discloses inks that include a block copolymer that has a repeated unit of a polyvinyl ether structure. See paragraphs [0031] - [0041]. None of the specifically disclosed vinyl ethyl monomers in paragraph [0036], or any of the polyvinyl ether polymers in paragraph [0038] include ethoxycarbonyl groups, as in the monomers recited to obtain the hydrophilic segments in amended independent claim 1. Accordingly, Applicants submit that Sato et al. fails to disclose or suggest an ink with a block copolymer with hydrophilic segments that are obtained from ethyl 4-(2-vinyloxyethoxy) benzoate or 1-(ethoxycarbonyl) ethyl vinyl ether, as recited in amended independent claim 1.

Further, as discussed above, Watanabe also fails to disclose or suggest these features of the amended independent claim 1 that are lacking in Sato et al. Thus, for at least the foregoing

reasons, Applicants submit that the combination of Sato et al. and Watanabe, even if taken collectively, fails to disclose or suggest the invention recited in amended independent claim 1.

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Applicants submit that all of the pending claims are patentably distinguishable over the references of record, and that the application is in condition for allowance. Favorable reconsideration, withdrawal of the outstanding rejections, and passage to issue of the present application are earnestly solicited.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our New York office at the address shown below.

Respectfully submitted,

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